ARCHITECTURE

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PLATES AND ILLUSTRATIONS.

ARCHITECTURAL CRITICISM.

TWO more parts of the grand scheme of the Military Academy are now complete—The Post Headquarters and Gymnasium. Both of them are suitable and beautiful buildings; the gymnasium being, to my way of thinking at least, the better of the two. This difference is due, largely to the different character of the wall surfaces which in the post headquarters is so rough and broken as to rob the enrichments of their proper effect. From the side where the height of the building is very great and the openings large this is not so apparent, but from the front where the openings are smaller and numerous the shadows cast by the stone seem comparatively too heavy. The building itself, aside from this question of surface, is another remarkable piece of design. It builds up from the ground about as beautifully as is conceivable and the mass of the tower dominates it as perhaps no other shape could. One of the most fascinating things about Cram, Goodhue & Ferguson's work is always the termination of their vertical lines, which, starting bulky and powerful at the base, by wonderfully modulated degrees, become slim and decorative at their crowns. This treatment has never been exhibited to better success than in the side of the headquarters building, where the buttresses, placed in a natural position to brace a high wall, are stepped back from their faces, and terminate in a crown of vertical members. This treatment, which I believe to be of modern development entirely and largely due to Cram, Goodhue & Ferguson, is the most excellent manner of decorating the coping wall that comes to mind, since it treats the top of the building as integral with the base. The entrance gate, too, is superb and forms a fitting entrance to a military post.

The gymnasium (Plates LXV, LXVI) is of much soberer material, the surfaces are flat and the decoration subdued, but its lovely surfaces and really magnificent treatment of the long wall, make it, next to the chapel, the best of the West Point buildings. It is both daring and refined, an experiment successful as are few experiments, in that it not only develops possibilities, but achieves them. Most work which dares so far, is of value rather for the vistas into future possibilities which it discloses, than for its intrinsic merit. Here has been opened up a field comparatively untouched, and yet the building in which it is disclosed is itself of the very highest merit.

The entrance hall is a good example of Guastivino construction adapted to a building where the finish, as well as the construction, is masonry.

The resemblance between the work of Leonard Stokes and Cram, Goodhue & Ferguson, has presented itself to me more than once, and the only building which comes to mind presenting the characteristics of this gymnasium is the Convent of All Saints at St. Albans, of which the former was the architect and the work of these architects seems to me to present in their respective countries the achievement, at once most progressive and most satisfying which has yet been done in the style they employ.

THE Armory of the Second Battery Field Artillery, N. G. N. Y. (Plates LXI, LXII), is probably the best in the City of New York. A big building useful for the purpose for which an armory is required, would not seem on the face of it a very difficult

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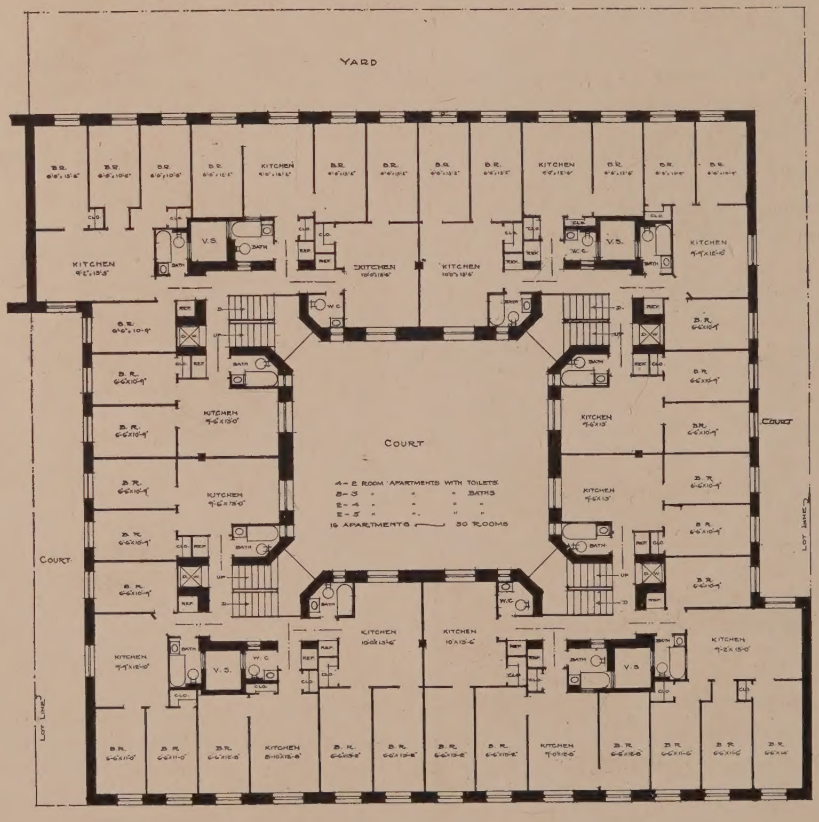

PERSPECTIVE AND TYPICAL FLOOR PLAN, OPEN STAIR TENEMENTS, 77TH ST., NEAR AVE. A, NEW YORK. Henry Atterbury Smith, Architect.

(*Continued from page 97*)

problem, but some of the best men working in the city have been up against it with marked lack of success. The armory in Brooklyn, built by Pilcher & Tachau, although not a complete success, had both quality and originality. With the exception of that building and the one here presented, the armories built in New York City have been almost uniform in that each has certain features which are either interesting or excellent, but in the main the results have been unsatisfactory. This has been, I believe, largely due to an endeavor to work in a style unsuited to the real conditions, and utterly unfamiliar to the architects who have endeavored to use it. The choice of a mediaeval castle as prototype for an armory building in New York City, can possibly be defended for sentimental reasons but when we consider the wide variance between the settings of the modern buildings and mediaeval ones and the completely different requirements of their uses, there seems to be no reason on earth why the castle type should be employed. It is, of course, almost an axiom that the design of a building should indicate its purpose, and therefore something of a military, or semi-military character should unquestionably be introduced into an armory design. This should, however, be indicative rather than assertive, and a building which consists of simply an enormous shed surrounded by club rooms, should not mask itself as a fortified dwelling house.

Even the fortification idea is no longer an essential. It is true that we may have at future times in the city of New York, mobs, but it is unlikely that these mobs will ever attack the armories while there are residences, jewelry stores and banks presenting infinitely greater rewards for a persevering thief without much danger. The proper manner in which to regard an armory is then as a military club house connected with a vast enclosed drill room.

It is from this point of view that C. C. Haight has approached the design of the Second Battery Armory. The main front is devoted to the company and officers' rooms, quartermaster's department, etc., which masks the roof of the drill shed. The architecture is of a curious and fascinating style; powerful without being brutal, original without being bizarre. The military thought is at once apparent in glancing at the photographs, but the windows are of ample size and as many as are needed to properly light the rooms within, not cut down to mere arrow slits as has been so often done. The composition is exceedingly picturesque and has not been carried to a point which entails a sacrifice of the dignity so essential in a public building. The window surfaces would perhaps be better were the windows themselves broken into small panes by leads or wooden sash bars; elsewhere there seems to be nothing to criticise in the texture of the surface.

The complete disregard for symmetry displayed throughout the building is of much interest, and the fact that it has not even been thought by the designers necessary to center the windows above each other, while bold in the extreme has resulted in a satisfactory way, perhaps because of the able manner in which the third story of the main facade is treated to hold the building together.

The mass of the tower looms up splendidly as seen from nearby points, but from further off it is hardly so dominant, and regarding the Franklin Avenue elevation as a whole, there seems to have been some indecision as to whether the whole tower was to be treated as a single dominant motive, with the smaller tower merely a corner turret, or the latter was of primary importance.

The architecture resembles both the modern English work and the Mediaeval Italian, a combination both curious and successful, due, I suppose, to the fact that no good designer of the present day can entirely rid himself of reminiscences of familiar older work, and that he must inevitably design with a modern feeling which, though different from the old, is in accord with it.

The interesting features are so many and the spirit of the design so complex that a cursory examination fails to impress one as does a more careful and thorough study. It is a building of the very highest interest and originality; quite the best as was before said, of our New York armories, and well worthy of its position as one of the city's monuments.

THE OPEN STAIR TENEMENTS, NEW YORK.

TEN years ago, when the Tenement House Law was framed it was intended to stamp out, effectually, the abuses of any corrupt building department, to cover every known condition of that time and every exigency that might arise in future, and to leave no burden of judgment or interpretation on the Tenement House Commissioner. From time to time, however, this strict literal reading of the law has imposed great hardship upon architects and owners who have attempted to introduce innovations (conceded to be improvements) but which had no classification in the law. Thereby, the city has suffered the loss of really good things that might have made for the betterment of its tenement dwellings.

Of special interest at this moment is the contention on the ideal plans of the Open Stair Tenements. In the opinion of the architect, Mr. Henry Atterbury Smith, his engineer, and the best architectural, medical and sanitary authorities it is determined that the protected outside stair well can be made to serve the purpose of ventilating shaft for toilets, with no disadvantage, and with the great advantage of eliminating the unhealthy and unsightly features of the ordinary air shaft which takes just so many feet of available space from the living quarters of the tenants. We are persuaded that Mr. Smith is right in his argument against the communicating shaft and if no law exists that will permit his plans, it is high time that the city and the progressive tenement house operators get together and promote a measure that will provide for discretionary power in cases of this kind.

ARCHITECTURE is presenting for comparison, the plans of the Vanderbilt Tenement for Tuberculous Families and the improved plans of Open Stair Tenement Company, both from designs by Mr. Henry Atterbury Smith. Mr. Smith's knowledge of conditions and requirements for these buildings is in no wise superficial. As an owner of large tenement holdings, he knows what is needed and has worked out his scheme intelligently from a business and financial standpoint. It speaks well for the architect who is able to combine art, utility and profit in perfect harmony and balance.

The day is past, when charities or semi-charities will take the lead in solving the housing problem in New York City. They have played their part and will continue as an educational adjunct of the social system. But it is from well organized business enterprises that real and permanent good will come. Mr. Smith is endeavoring to convince building investors (speculators and promotors, if you will) that the best building which can be planned and built with

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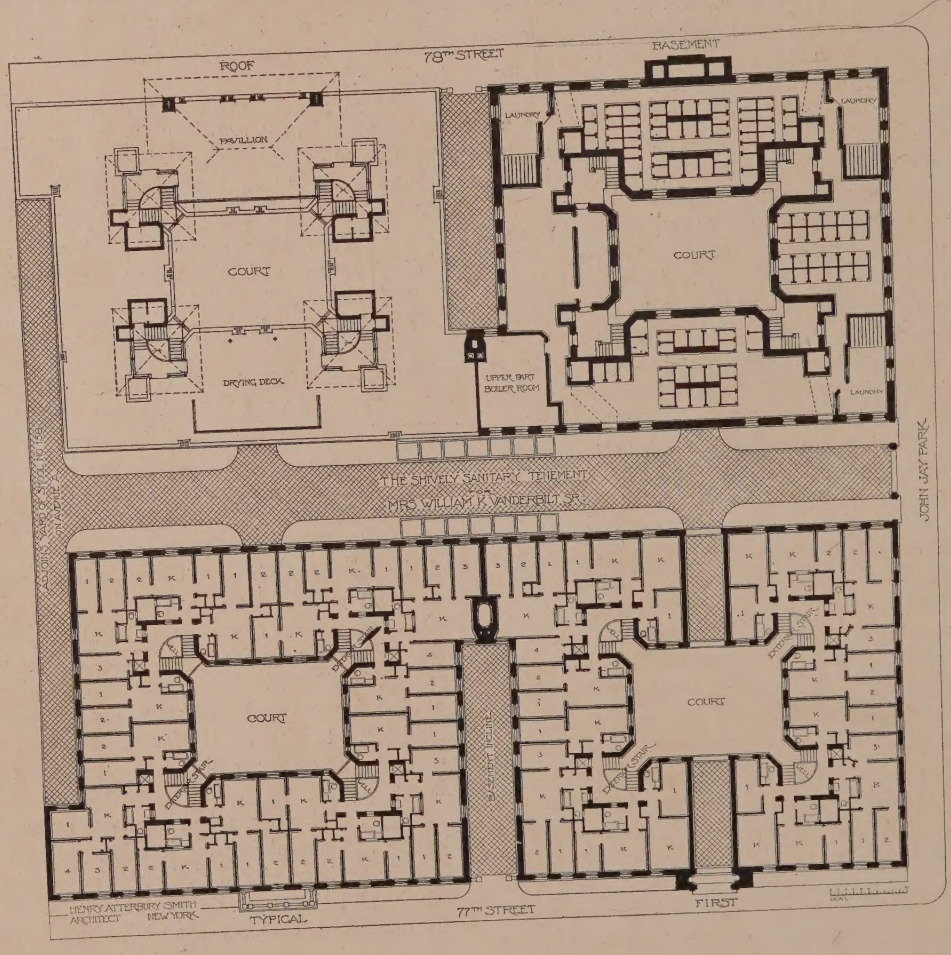


PERSPECTIVE AND TYPICAL FLOOR PLAN, SHIVELY SANITARY TENEMENTS, 77TH ST. AND JOHN JAY PARK, NEW YORK.
Henry Atterbury Smith, Architect.

(Continued from page 99)

careful and economical arrangement of floor spaces, maximum light and air, is the most marketable in sale and the most profitable as renting property. The latest plan shows the periphery of the outside walls entirely preserved for the living rooms and the possibility of 28 rooms on a fifty-foot lot—within the law.

PHILADELPHIA CHAPTER A. I. A.

THE Philadelphia Chapter of the American Institute of Architects closed its present season of activity on June 25th with its annual outing, the scene of which was Princeton, N. J.

The Chapter chartered a special car and invited the members of the T Square Club to participate in the outing, which included luncheon at the Princeton Inn and afterwards an inspection of the town and of the improvements under way at Princeton College.

At the last regular meeting much hope was held out for the consummation of a plan which the Chapter has been working upon through a special committee to secure Chapter quarters. This plan contemplates the erection upon a prominent site, of a building which would house a large number of architects, who might run the whole building on a co-operative basis with all the advantages which would naturally accrue to the profession as well as the occupants from such an arrangement

Another and a most important matter brought before the meeting was the report of the committee on the Preservation of Historic Monuments—by which it became known that the city authorities had accepted the proffered services of the committee in connection with the restoration of Old Congress Hall. This assures to the city, without cost other than the actual expenses of the surveys and the preparation of drawings, a comprehensive and authoritative restoration as the committee have for years been making a thorough study of the present and past conditions, particularly the latter. Much of the credit for the successful outcome of the project, which should have been consummated years ago, belongs to the present Mayor of Philadelphia, the Hon. J. E. Reyburn, who caused the appropriation to be made for this purpose. The amount to be expended carries with it a modern lighting system for the historic Independence Hall and Independence Square which has also been entrusted to the Chapter's energetic committee.

The Committee on Public Information reported that the Code of Competitions recently issued by the Institute had been distributed to all non-institute members of the profession in the Philadelphia Chapter territory. A resolution of regret and condolence was adopted on the death of W. Bledynn Powell, the City Architect of Philadelphia and long time a member of the Institute.

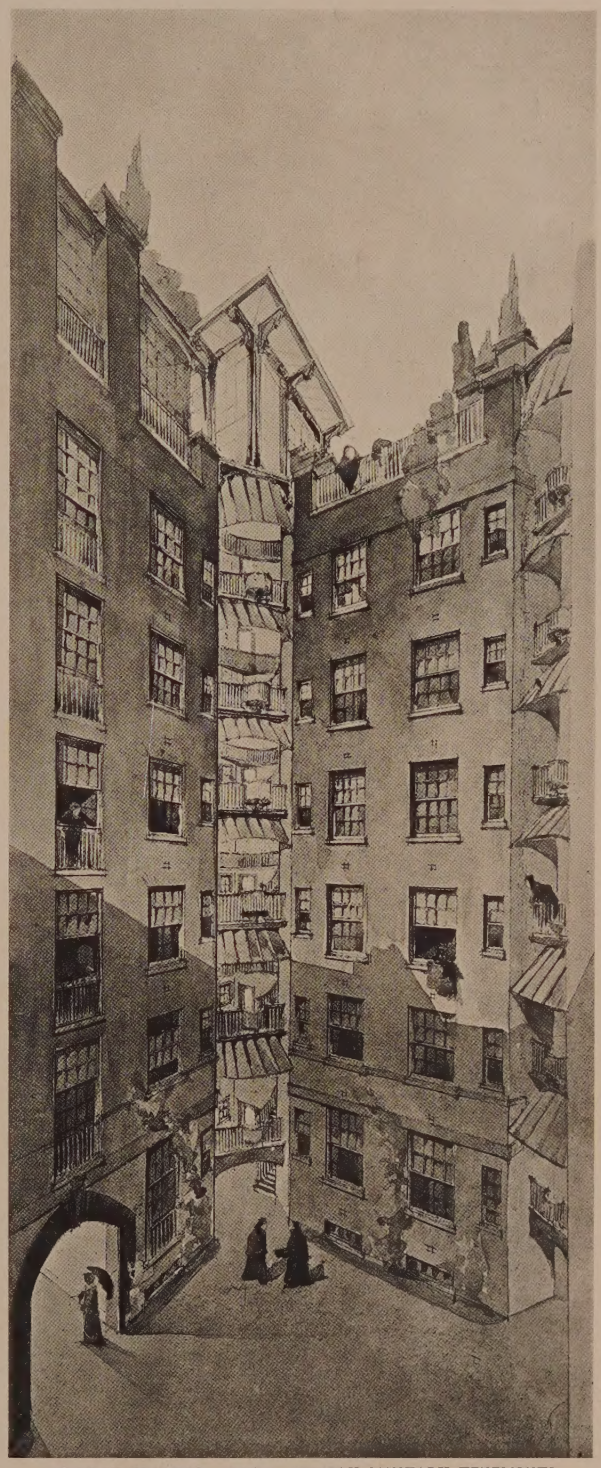
Some of the members who had appeared at the Harrisburg Capitol trial to uphold the significance of the architects' certificate and the honor of the profession reported in detail regarding same and all regretted the necessity of the occasion which required their presence for such a purpose.

The Committee on McKim Memorial Fund reported having received a large number of subscriptions towards the Chapter's quota.

Professor Thomas A. Nolan read an interesting report on behalf of the Chapter's delegates to the annual meeting of the Pennsylvania State Association of Architects which was held in Pittsburg.

A discussion took place on proposed changes to the building laws, and the President of the State Association, who was present, stated that the whole subject was being taken up for the State by a committee of the Association on which committees were members of the Philadelphia Chapter.

At the preceding meeting of the Chapter, after routine business, an address was given by Mr. Alfred Hoyt Granger,

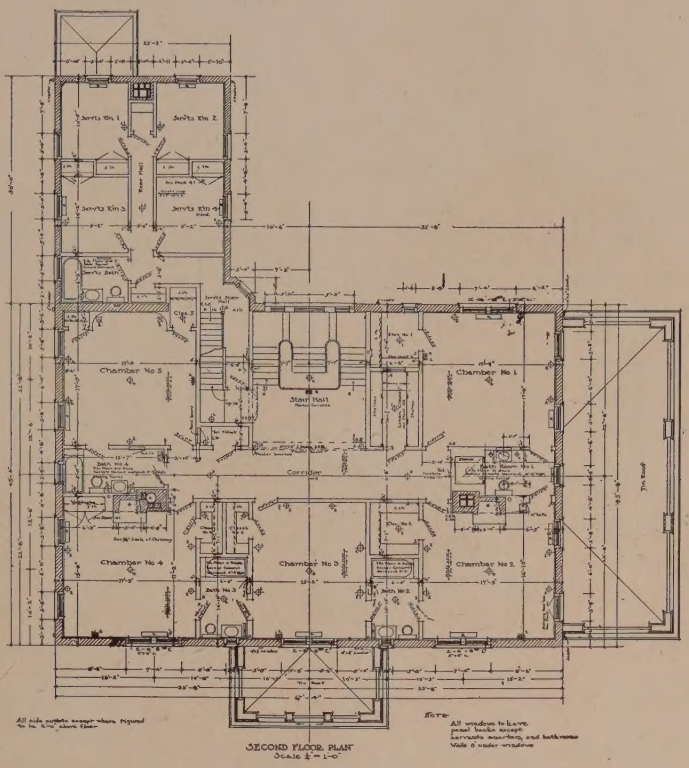


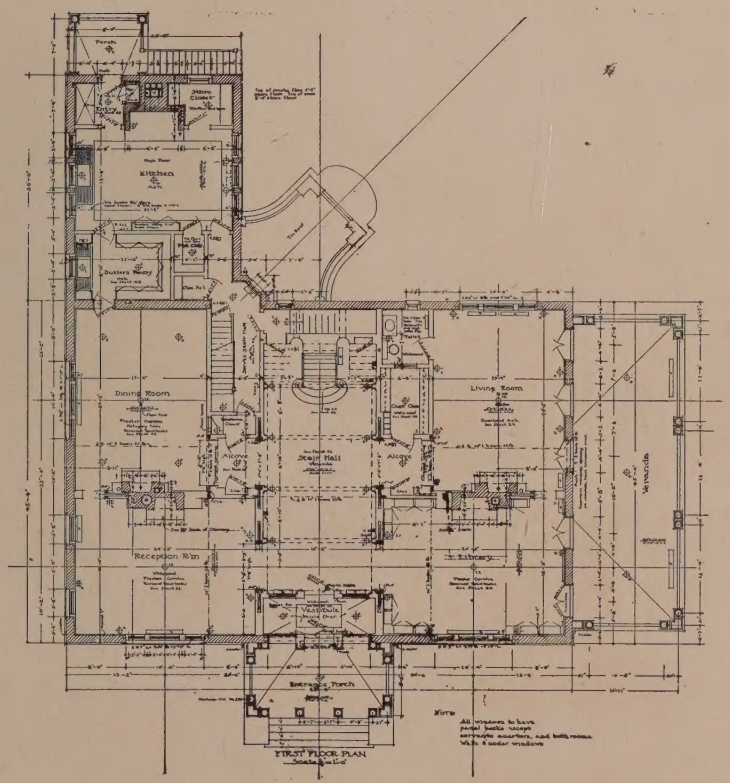
OPEN STAIRS FROM COURT, SHIVELY SANITARY TENEMENTS.

COUNTRY HOUSE, C. E. VAN VLECK, MONTCLAIR, N. J.

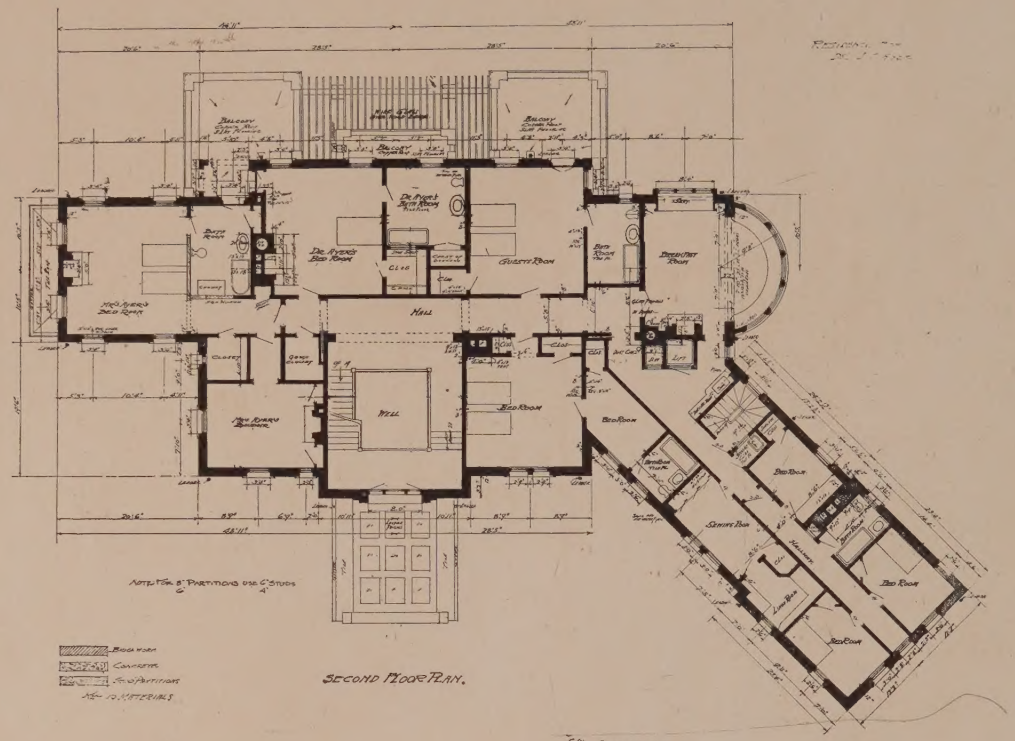
Kinnear Pressed Radiators.

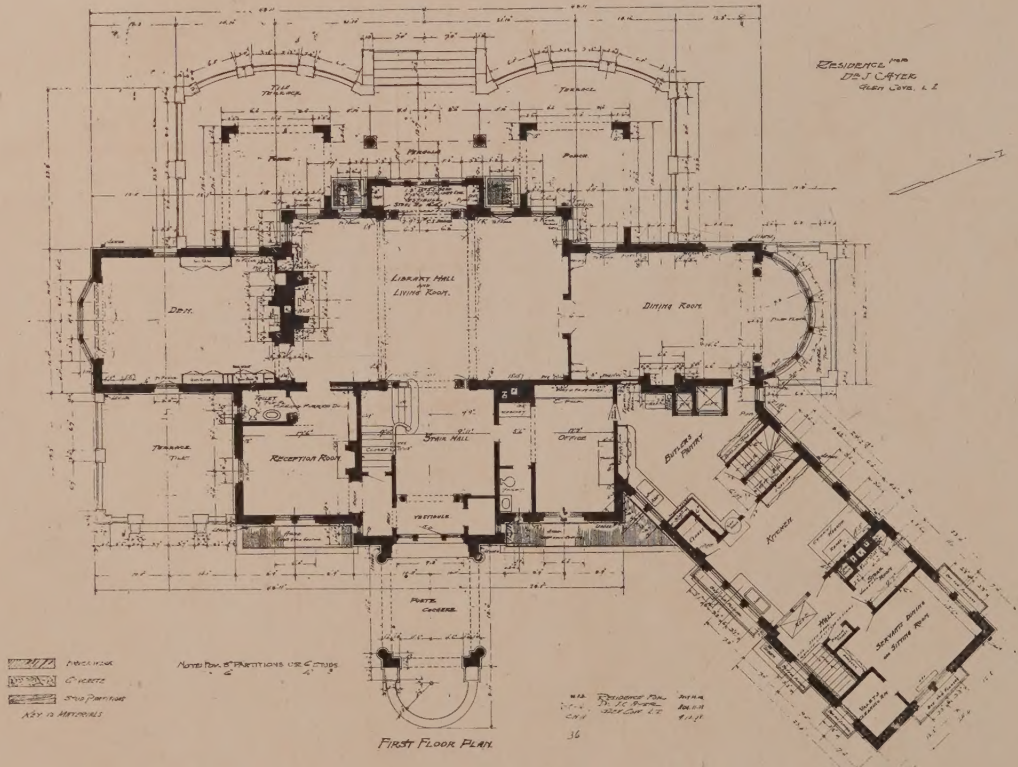
VanVleck & Goldsmith, Architects.



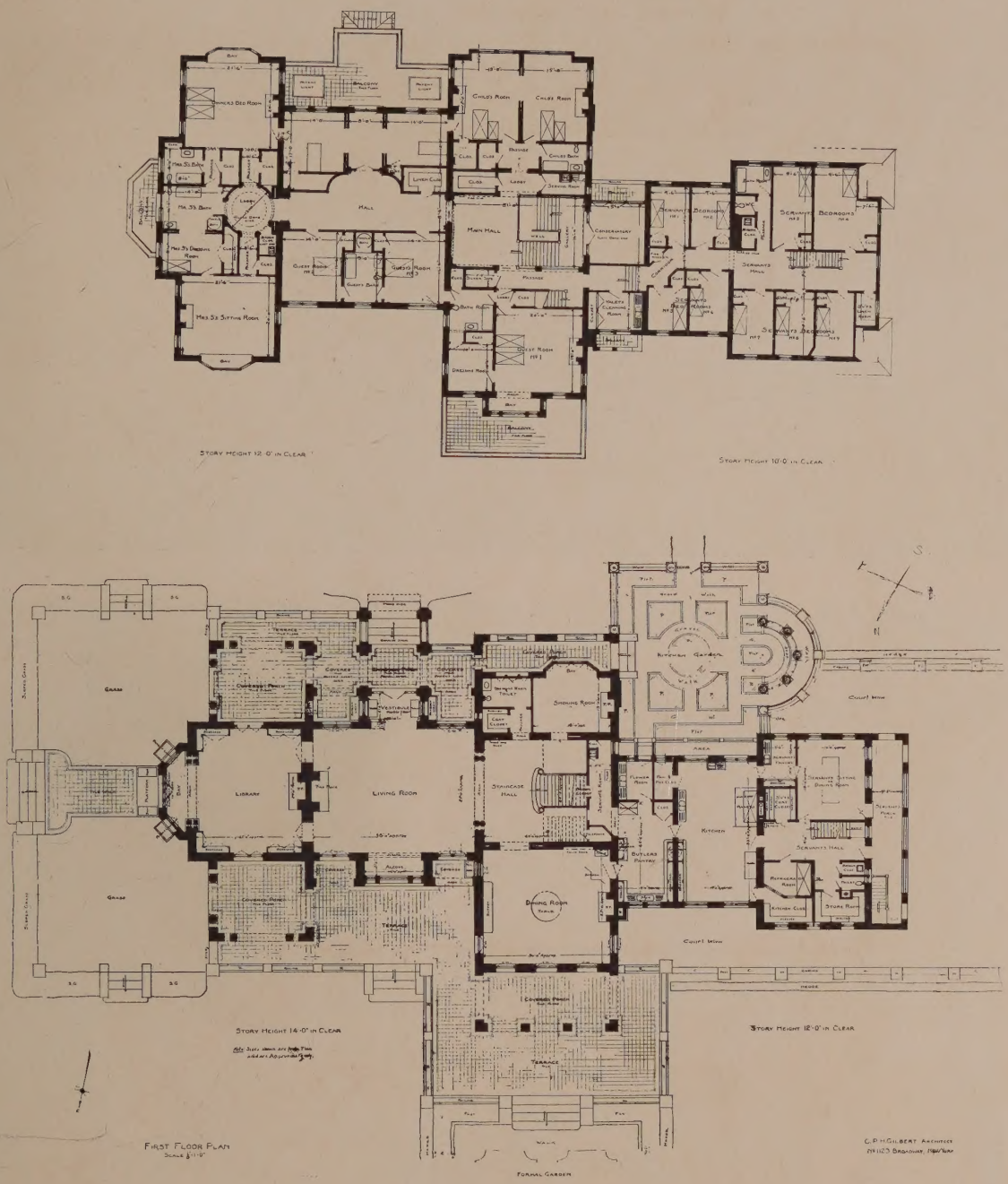


PLANS, COUNTRY HOUSE, C. E. VAN VLECK, MONTCLAIR, N. J. Van Vleck & Goldsmith, Architects.





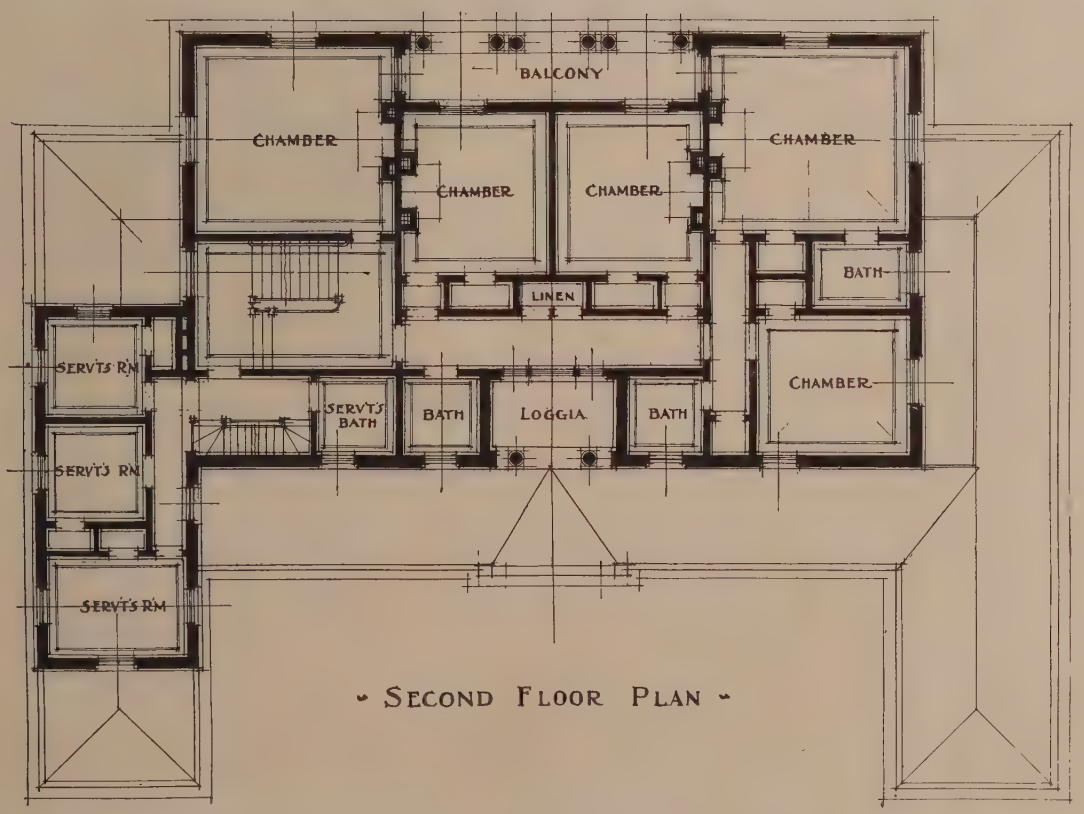
PLANS, COUNTRY HOUSE, DR. J. C. AYER, GLEN COVE, L. I. (See Plates LIX, LX). C. P. H. Gilbert, Architect.



PLANS, COUNTRY HOUSE, MORTIMER L. SCHIFF, OYSTER BAY, L. I. (See Plate LXVII). C. P. H. Gilbert, Architect.

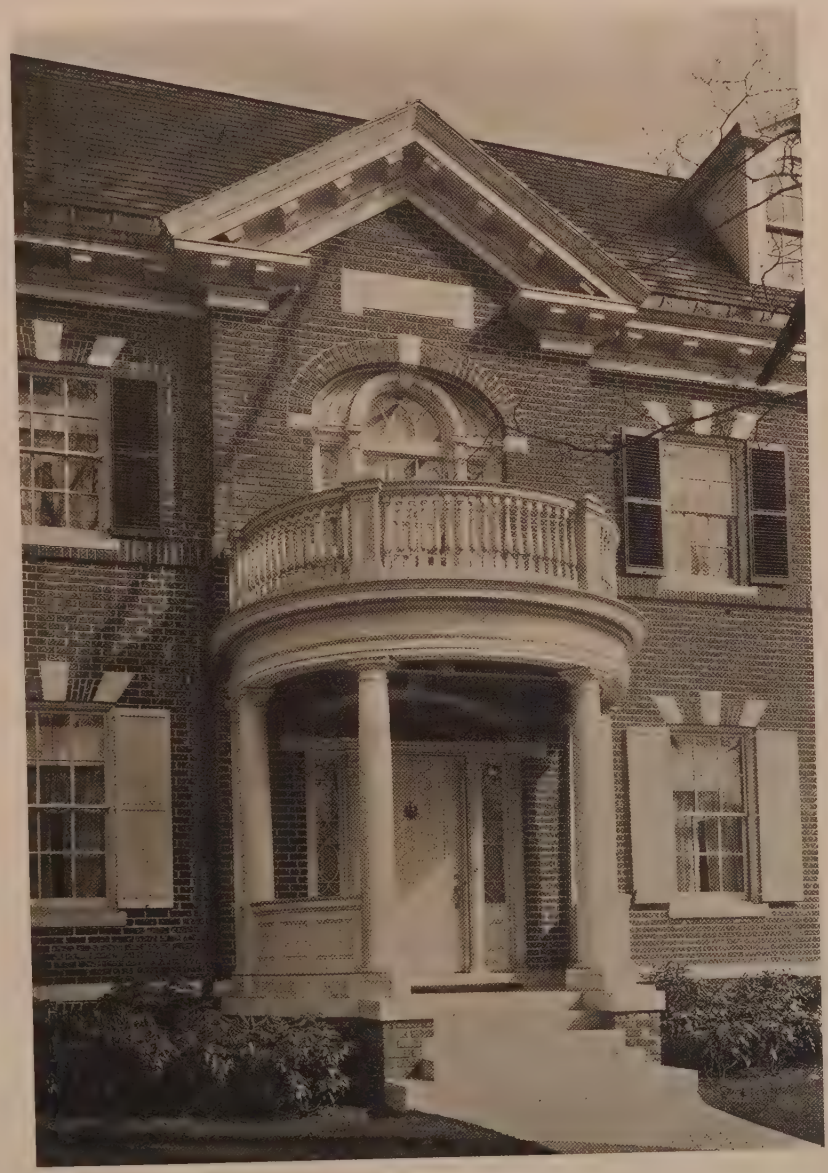
HALL AND LOGGIA, COUNTRY HOUSE, J. GRANT FORBES, DOVER, MASS. (See Plate LXVIII). James Purdon, Architect.

FIRST FLOOR PLAN



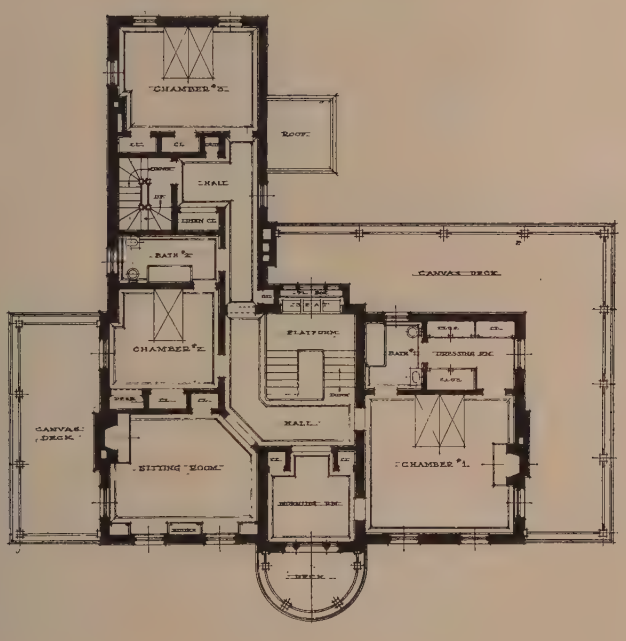
SECOND FLOOR PLAN

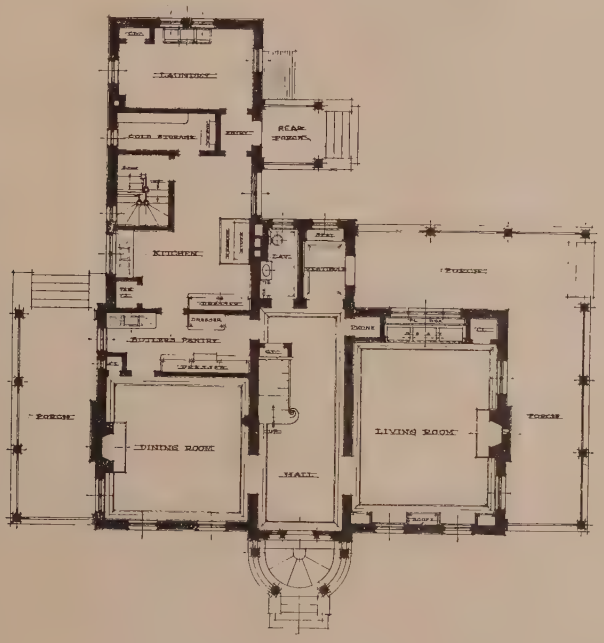
PLANS, COUNTRY HOUSE, J. GRANT FORBES, DOVER, MASS. (See Plate LXVIII). James Purdon, Architect.



ENTRANCE AND HALL, RESIDENCE, RUDOLPH STEINERT, NEW HAVEN, CONN.

A. S. Gottlieb, Architect.





RESIDENCE AND PLANS, RUDOLPH STEINERT, NEW HAVEN, CONN. A. S. Gottlieb, Architect.

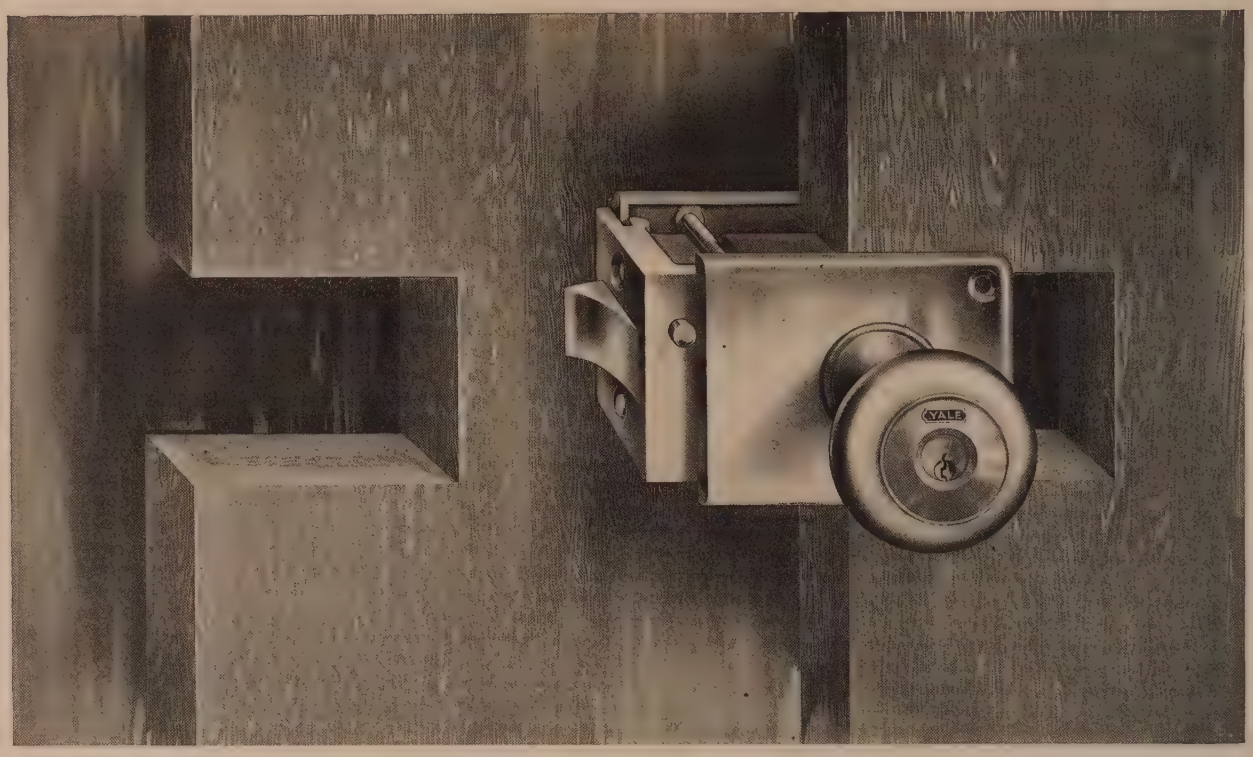


Fig. 1. The rectangular cut made to receive the lock.

Fig. 2. Applying the lock without separation of its parts.

YALE MONO-LOCK SETS

THE argument in favor of locks of the so-called "unit" type of construction, which is a recent development, and of which the Yale Mono-lock is the latest and best example, is as follows:

The lock-set commonly in use on doors comprises a lock mortised into a door, a spindle passing through the door, and carrying on each end a knob, and two escutcheon plates attached to opposite faces of the door, each containing a thimble to support the knob. These numerous independent metallic parts are never assembled until fitted to the door, and then are not in metallic contact, the wood of the door being relied on to hold them in the proper relative positions. These conditions involve considerable work and some skill in the cutting of the door and the assembling thereon of the lock and its trim, and imply that the adjustment of the parts, even if perfect at first, may be disturbed by the shrinking or swelling of the wood. All these difficulties are eliminated by the construction shown below.

The Yale Mono-lock Set, which includes the lock and trim complete, is a metallic entity or unit. The carpenter has only to make a rectangular cut in the edge of the door, to enable him to apply the lock as a single piece, and to attach it permanently in place. The lock and its trim, assembled complete by the lock maker, go on the door in the condition it which they left the factory, and constitute a single metallic structure, securely attached to the door but unaffected by the shrinking or swelling of the material of which the door is made.

In these locks the mechanism is wholly contained within a closed case of cast metal, precisely as in ordinary rim and mortise locks. The mechanism, which is simple and substantial, is thus effectively protected against dirt and disturbance both in transit and in use.

The case is attached at its forward end to the bronze front, through which projects the bolt which is of the "hinged" type, giving a very smooth and quiet action in closing. The front is integral with the outside escutcheon plate which carries the thimble supporting the outside knob. The

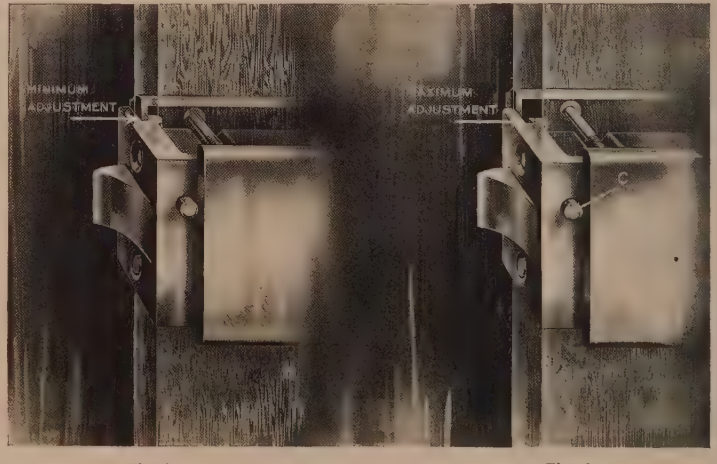


Fig. 3. Fig. 4.

Showing adjustable interlocking feature and manner in which the machine screws are utilized to clamp the lock structure firmly to the door.

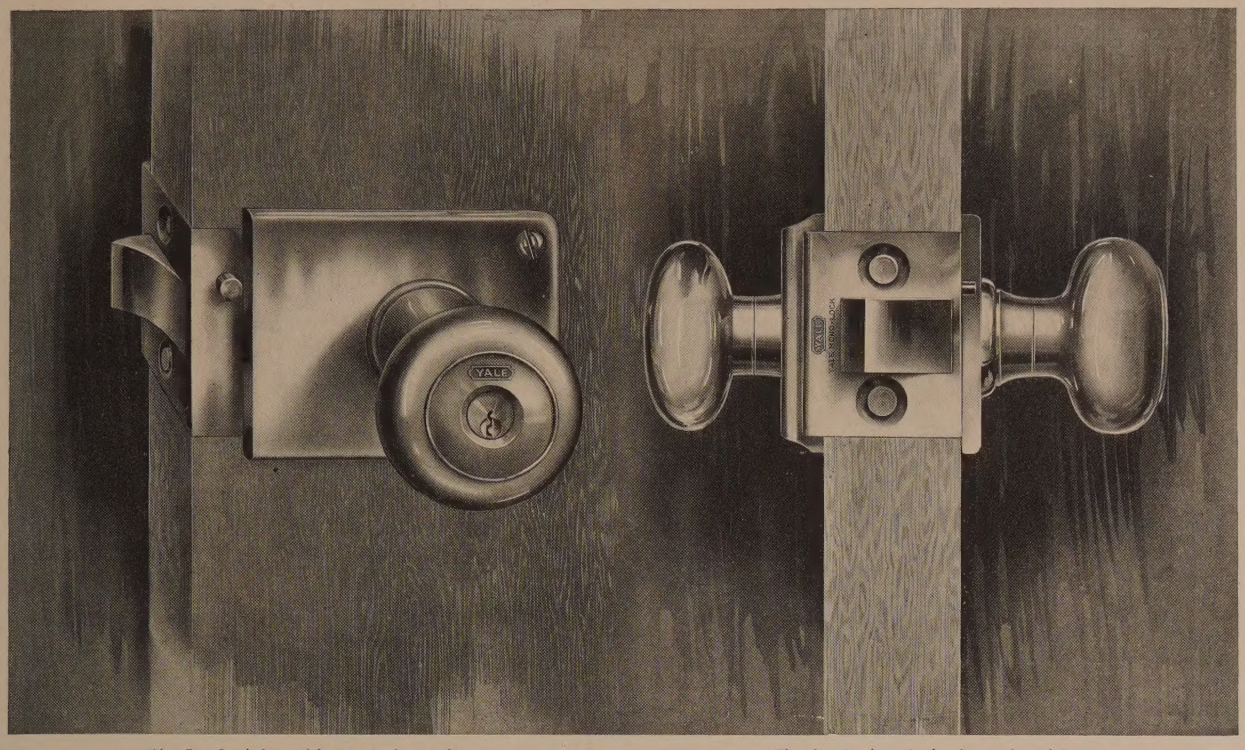


Fig. 5. Lock in position ready for service.

Fig. 6. Lock and trim from edge of door.

inside escutcheon plate, carrying the inside knob, is similar to the outside plate, but is separated from the front, with which, however, it is adjustably interlocked. The two escutcheon plates and the lock front thus form a continuous metallic structure, while the interlocking connection between the inside plate and the lock front affords a means of adjustment to compensate for variations in thickness of doors.

The construction and relationship of these several parts are clearly shown in the illustrations.

To apply the lock the carpenter has only to make a rectangular cut in the edge of the door, about 3½ inches deep by 2¾ inches high (see Fig. 1), whereupon (after slightly loosening the two machine screws) he can apply the lock and its trim complete, without separation or disturbance of its parts (see Fig. 2). All that then remains to be done is to tighten the two machine screws which clamp the lock to the door, and to insert the wood screws whereupon the lock is ready for service (see Figs. 5 and 6).

An admirable feature in the Yale Mono-lock is that which (with the standard of "backset" of 2¾ inches) limits the total depth of the lock-case (and, therefore, the depth of cut required in the door) to 3½inches. This means that the lock with the plain trim, can be used on a stile as narrow as 4¼ inches.

Another excellent detail is the interlocking of the lock front and inside escutcheon plate in the manner shown by Figs. 3 and 4, whereby moderate adjustability to varying thicknesses of doors is obtained without breaking the continuity of the metallic construction. In this way all sharp corners, by which the hand or clothing might be caught or injured, are avoided.

Figs. 3 and 4 also show the manner in which the machine screws are utilized to clamp the lock structure firmly to the door and are inaccessible from the outside of the door. In all of the Yale Mono-locks the bolt is of the hinged type illustrated above.

Where a "deadlock" is desired the spring plunger *C* (Fig. 4) is provided, which, impinging against the lip of the strike, is automatically pushed in when the door is closed, and in this position causes the bolt to be deadlocked so that it cannot be retracted by pressure on its end. In this way, and by means of a single heavy bolt, the convenience of a latch bolt and the safety of a dead bolt are obtained without enlargement of the lock.

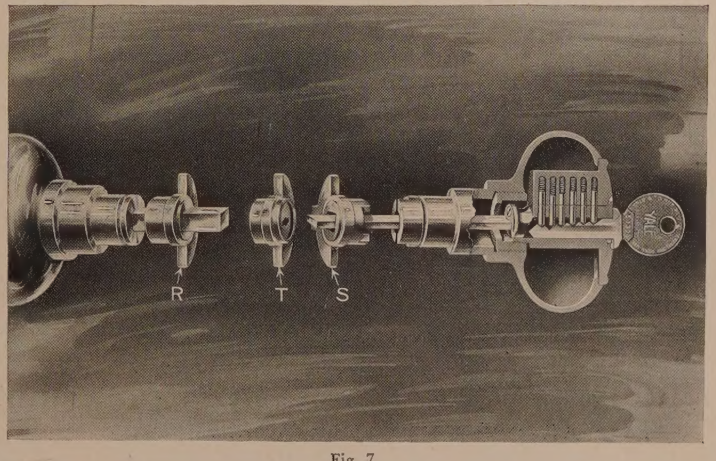


Fig. 7.
Sectional view of knob with cylinder, showing the three cams (R, T and S), any one of which operate the bolt. The various parts are shown on the same exial line as in use but separated to show each distinctly.

When "stop-work" is used, as in front-door and vestibule locks (whereby action of the outside knob may be permitted or prevented at will) the "stops" or push buttons by which the stop-work is operated are located in the front of the lock, as shown by Fig. 4, and these are also dogged by the spring plunger *C* so that they cannot be operated when the door is closed.

The outside knob carries the "cylinder" which contains the Yale pin-tumbler key mechanism. When the outside knob is "set" so that it cannot turn, the bolt can be retracted from the outside only by means of the proper key. When the outside knob is "unset," the bolt can be retracted by turning the knob. It can always be retracted by turning the inside knob. The action of the lock, by key or by knobs, varies in the several styles of locks according to the use for which each is intended.

The means by which the knobs and the cylinder are enabled to actuate the bolt are illustrated by Fig. 7.

The center cam *T* (see Fig. 7 on previous page) can be rotated only by means of the key acting on the flat "connecting bar" which projects from the rear of the cylinder in the outside knob, and passes through cam *S* to engage with cam *T*. The outside knob engages with cam *S*, and the inside knob with cam *R*, the rotation of either knob causing its cam to actuate the bolt.

The method of attaching the outside knob to its escutcheon plate (also of detaching same) is illustrated in Fig. 8. In the shank is a deep groove *V* into which fits one arm of the bell-crank *P*, thus securely locking the knob to the escutcheon plate, but leaving it free to rotate. The other arm of the bell-crank *P* engages with the lug *Q*, projecting from the inside of plate, thus holding the bell-crank in engagement with the knob shank.

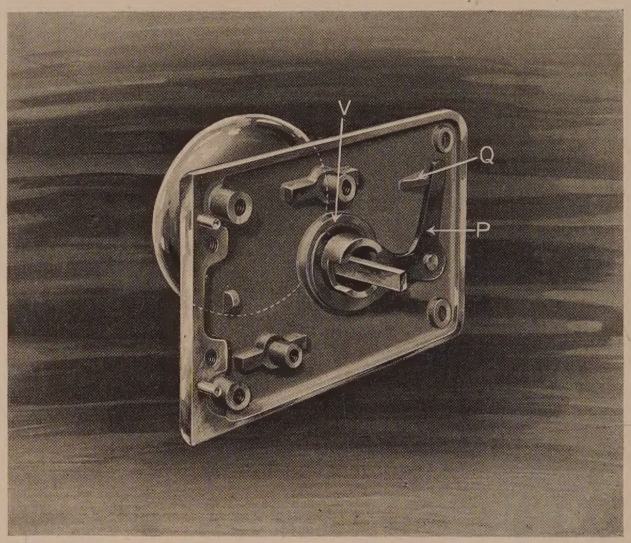


Fig. 8. Showing method of attaching outside knob to its escutcheon plate.

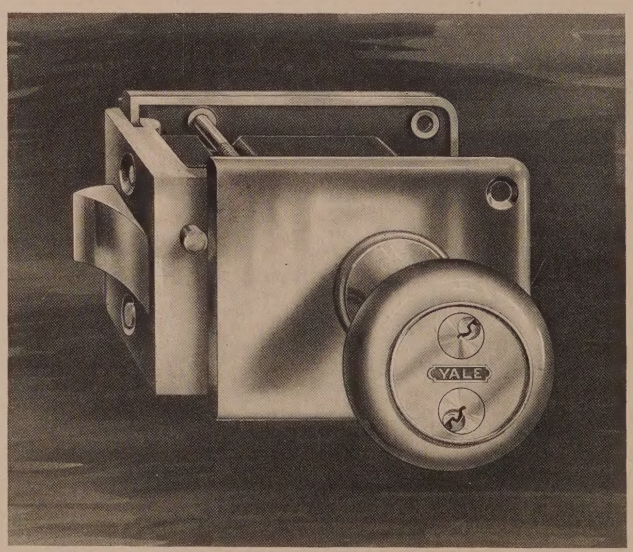


Fig. 9. The Mono-lock with Bicentric Cylinder in knob.

By springing this end of the bell-crank up and over the lug *Q*, its other end is disengaged from the knob shank, thus permitting the knob to be removed from the plate for the purpose of repairing the cylinder or of changing its combination when this is desired.

This facility of access to the cylinder containing the key mechanism is of great convenience, especially in the case of locks used in large series, as in public buildings, hotels, etc., where the locks are controlled by master-keys, and where changes of tenants occur frequently.

The cylinder is disengaged from the knob by inserting a special wrench (provided on special order), in the shank of the knob, and unscrewing the cylinder from the knob.

MASTER-KEYING THE YALE MONO-LOCK.

The Bicentric System: The Yale Bicentric Cylinder consists of two independent key mechanisms contained in the knob, as shown by Fig. 9. Each mechanism is controlled by its own key of special cross-section. The change and master-keys have reversed sections, so that each will enter only its own keyway. Any desired combination of master and change keys may be obtained without the slightest impairment of security.

The Standard Yale System: The regular Mono-lock cylinder with one key-way can be master-keyed in small groups (usually sufficient in number and variety to cover residence requirements), with the regular key, and in larger groups by means of the "surety" system of master-keys of special sections.

The regular Mono-lock cylinders are *master-keyed* in one set of any number of changes usually required, all different, with a master-key to pass all locks; or in any number of sets required, each set having any number of changes, all changes different, with master-key to pass the locks in each set and a grand master-key to pass all the locks.

They may be master-keyed with any other cylinder locks using the Standard Yale Cylinder.

This system is slightly cheaper than the Bicentric system, but the latter is in all respects better and should be given preference in view of the small difference in cost. If a series of master-keyed Yale Cylinder Locks comprising one thousand or more locks is required, the Bicentric Cylinder should be availed of.

The Yale Mono-lock Set is made to meet the widest variety of uses in ordinary front doors, vestibule and corridor doors, communicating doors, office doors and for special uses in hotels and institutions.

Any of the vast number of ornamental designs already in use in connection with Yale Cylinder Locks may be adapted as trim for the Yale Mono-locks.

The Yale & Towne Mfg. Co. are prepared to undertake the study and execution of special designs for hotels, office buildings, clubs, residences and other buildings.

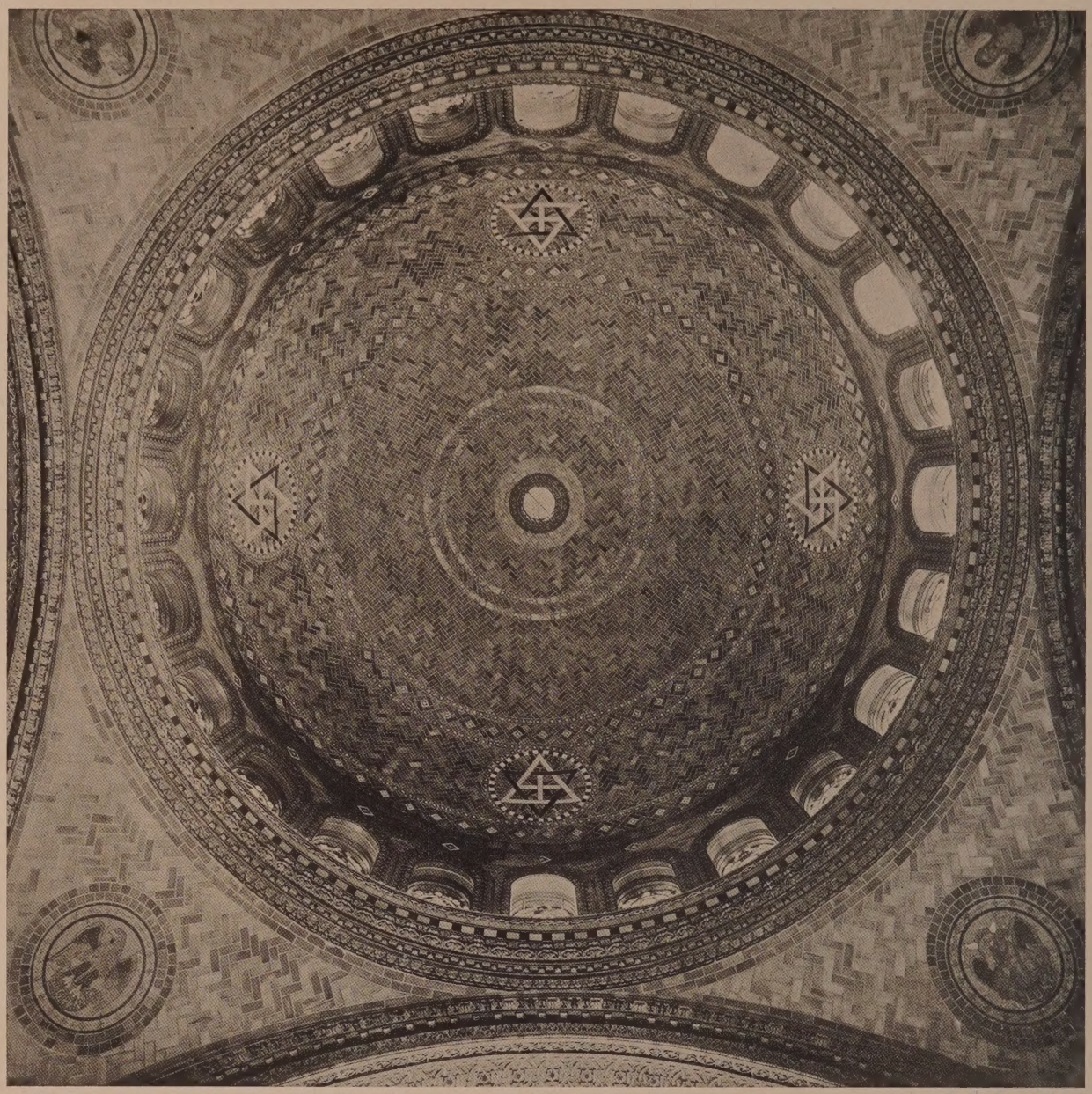
EXPERIMENTS IN ARCHITECTURE.

PROFESSOR Lethaby chose a somewhat startling title for the paper which he delivered before the Royal Institute April 18, 1910, says *The London Building News*. He was to speak upon the "Architecture of Adventure," while, as a matter of fact, he devoted himself to an exposition of the theory that all architectural development is the outcome of a series of experiments conducted by a large number of men over a considerable period, the men all working in harmony with one another and with the spirit of their country and their time. It is a new line for a modern leader of architectural thought to take up; it is one, however, which we have urged in these columns persistently for some time past. It is refreshing to hear it said that the greatest architects of past ages—not so much perhaps those who have carried out the greatest works of art, but certainly those who have left their mark most clearly upon architectural evolution—have been great scientists as well as artists. Professor Lethaby took examples from all times, from among the Greeks, the Romans, the Byzantines, the great Gothic workers of the Middle Ages, and the revivalists of the Renaissance period, in Italy, France and England. Most of the architects he mentioned were also mechanical or military engineers, or both; many of them were geometricians of note; others were mathematicians, and even astronomers and aviators. In many cases men possessed of these high scientific attainments, as they would be reckoned in their days, not only followed the art of architecture, but the arts of sculpture and painting also. The greatest men were men of many parts. But the real lesson which Professor Lethaby drew was that architectural development was a natural outcome of a deep insight into scientific construction; that the great buildings were not erected merely because their designers were inspired artists, but because they applied their artistic capabilities to the production of beautiful forms on scientific lines; that the science of construction was the necessary basis out of which all the rest grew. He laid particular stress upon the fact that Gothic architecture was an architecture of scientific construction almost entirely; of poise and counterpoise, thrusts and their resistance; that it developed by each daring experiment being made in advance of a previous one little less daring but successful. He showed that the whole idea of domical construction had a scientific basis, and that here again fresh experiment succeeded each successful experiment, the steps being slow and many before the final great achievements were accomplished.

Having thus historically substantiated this position, Professor Lethaby went on to explain that the architectural education of the future should have a sound scientific basis. This is a very important dictum considering the position which he holds at the present time, the great influence which he must weild, for instance, upon the Education Board, and the fact that that board is just commencing to set to work seriously. It is clear that what Professor Hamlin said a few months ago about the highly scientific basis of architectural training in America has led to much deep thought upon the part of educational leaders here, and that they have come to recognize that there is a great deal to be said for the method in which our American cousins are proceeding. This is undoubtedly a scientific age. The greatest structural works of the last fifty years have not been architectural, but of a purely engineering character. If architecture is to take advantage of modern science, if it is to develop along new and sound lines, it is essential that the architects should themselves be scientists, or, at any rate, that they should understand the science of the construction which they use.

Students are, it may be admitted, occasionally met with who possess the artistic but not the scientific faculties; but the question is not whether to use such students in architecture so much as whether it would not be better if they left architecture severely alone and devoted themselves either to the decorative or the fine arts which are unconstructional—to designing wall-papers, or painting landscapes. Similarly other students are to be discovered who are scientists, pure and simple, and have no capacity for art whatever. All are agreed even now that such should abandon any idea of following the profession of architecture. The great majority of architectural students, however, have chosen architecture because they feel they have a capacity for it. They are possessed of sufficient mental capacity to understand at least the rudiments of scientific construction if they are properly taught; and they are infinitely the better for such an understanding.

The spirit of advance seems to be with us at this present time; it has certainly been with us constructionally for a long while past, but there are signs that it is almost with us also in art. Professor Lethaby's claim that this can only come about by basing the art of the future upon the construction of the future, appears to be incontrovertible. Architects will have to make experiments, to adopt the new forms of construction, to clothe them, as well as in them lies, with architectural expression, and to feel their way gradually step by step. As things are at the present time, it is impossible to stand still. Architects have at their command resources of which their forefathers had absolutely no conception; it is compulsory upon them to use these resources. They cannot leave all the experimenting to the engineers; and even if they did so, it would still remain necessary to clothe the engineering work with suitable enrichment. In order to do this, they must understand the framework which the engineer provides; otherwise they would become mere decorative artists and lose their positions as true architects. Even the planning of a building must, to a considerable extent, depend upon a knowledge of the method of construction which is to be used; not on a mere recognition that it is possible to do almost anything with steel and reinforced concrete, but on an understanding of exactly what can be done by these means and how it can be done. If the one result of this be to draw sufficient attention to the need of theoretical study by the young architect it will have accomplished a very great deal. We need not go so far as to insist that before true architectural studies are commenced each young man should have a knowledge of the calculus, as was enunciated by Professor Hamlin—even engineers do not always need the calculus—but at the same time a sound knowledge of applied mathematics, the principles of mechanics, and the theory of stresses should be acquired at a very early stage. Starting with this as a fundamental basis, the whole of the theories underlying modern construction, whether in steel or reinforced concrete, or what else there may yet be to come, would not be difficult of comprehension; and once fully understood so as to form an integral part of the young architect's acquirements, the knowledge would be utilized unceasingly. Architectural experiments would follow one another in natural sequence, and a suitable type of architecture would emerge.



DOME, ST. FRANCIS DE SALES CHURCH, PHILADELPHIA. Henry D. Dagit, Architect.

The above photograph shows the interior of the dome of the rotunda constructed of ornamental tile in polychrome colors.

The span of this dome is about sixty feet.

This method of construction is now being adapted in many church buildings throughout the country where the tile forms a permanent decorative finish.

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